Missouri Department of Natural Resources

Draft Bacteria Total Maximum Daily Loads (TMDLs) and Implementation Plans
SUMMARY OF COMMENTS AND RESPONSES

Coldwater Creek (WBID 1706), Creve Coeur Creek (WBID 1703),
Fishpot Creek (WBID 2186), and Watkins Creek (WBID 1708)

St. Louis County, Mo.

Public Notice
May 23 – Oct. 21, 2014

Missouri Department of Natural Resources
Water Protection Program
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INTRODUCTION

U.S. Environmental Protection Agency (EPA) regulations require that total maximum daily loads (TMDLs) be subject to public review (40 CFR 130.7). The Missouri Department of Natural Resources placed the draft Coldwater Creek, Creve Coeur Creek, Fishpot Creek, and Watkins Creek bacteria TMDLs and implementation plans on an initial 90-day public notice and comment period from May 23, 2014 to Aug. 21, 2014. The public comment period was extended to Oct. 21, 2014. All original comments received during this public notice period are available online on the department's website at http://dnr.mo.gov/env/wpp/tmdl/docs/stl-tmdl-public-comments-10-27-14.pdf. Comments were received from the following groups or individuals:

The Boeing Company
Cavender, David
City of Chesterfield
City of Clayton
City of Creve Coeur
City of Ellisville
City of Florissant
City of Hazelwood
City of Ladue
City of Manchester
City of Winchester
Delcoure, Sandra
Howard Bend Levee District
Metropolitan St. Louis Sewer District
Missouri Department of Transportation
Monarch-Chesterfield Levee District
The Partnership for Tomorrow
St. Louis County – Office of the County Executive
St. Louis County Municipal League

This document summarizes and paraphrases the comments received, provides the department's responses to those comments, and notes any changes made to the final TMDLs or implementation plans resulting from these comments. The final TMDL and implementation plan documents also incorporate suggested edits and language changes provided as public comments where such comments provide additional clarification or correct inaccurate statements or incorrect information. Suggested changes to the document that conflict with Missouri's Water Quality Standards, department style guidelines, or elements required for EPA approval were not incorporated. The TMDLs and implementation plans addressed in this response to public comments are available on the department's website at dnr.mo.gov/env/wpp/tmdl/index.html.

RESPONSE TO COMMENTS
(Public comments in bold)

1. Comment: **In Table 5 of Section 3.1.2 in the Coldwater Creek TMDL, the Boeing St. Louis facility is incorrectly identified with a Standard Industrial classification, or SIC, description of "Nonresidential Building Operators." The commenter requests the description be changed to "Aircraft," which is consistent with the description provided in the facility's Missouri State Operating Permit.**

1. Response: The department appreciates the correction. The SIC description provided in Table 5 of the Coldwater Creek TMDL has been changed to "Aircraft."

2. Comment: **In Table 5 of Section 3.1.2 in the Coldwater Creek TMDL, the Boeing St. Louis facility is shown as having a design flow of 0.3 million gallons per day, but does not mention that the facility also discharges stormwater. The commenter requests that this table be modified to also include "stormwater."**

2. Response: Table 5 was modified to note the stormwater discharges from this facility. Additional formatting changes were also made to accommodate this change.

3. Comment: **The commenter supports the statements in the Coldwater Creek TMDL that the Boeing facility does not cause or contribute to the impairment and is assigned a wasteload allocation of zero. The commenter requests that the department include in the first paragraph of Section 3.1.2. of the TMDL, "The MDNR does not believe that additional monitoring for *E. coli* is necessary and will not be required of the permittees at this time."**

A similar comment: **Regarding Section 8.1 of the Coldwater Creek TMDL implementation plan, this section should specifically identify that no additional *E. coli* monitoring is needed for the non-domestic/industrial site-specific permitted dischargers unless sources of *E. coli* are identified, at a given facility, that are capable of causing or contributing to the impairment.**

3. Response: Monitoring requirements are specified in neither the TMDL nor the implementation plan, but are conditions set forth during the permitting process. The TMDL notes, in general, that upon permit renewal the permit writer will evaluate current limits and conditions for compliance with state water quality standards. This evaluation is completed with information and data available at the time of renewal regarding a facility's reasonable potential to contribute pollutants of concern. As stated in Section 3.1.2 of the TMDL, the Boeing facility and the other industrial and non-domestic wastewater permits identified in Table 5 of the Coldwater Creek TMDL are not considered to contribute to the bacteria impairment of Coldwater Creek. No changes were made to the TMDL or implementation plan as a result of these comments.

4. Comment: **The draft Creve Coeur Creek TMDL and implementation plan make no mention of a physical inspection of the affected reach of stream and upstream areas for illicit discharges including failing septic systems. The TMDL cannot adequately assess potential sources of bacteria without such a survey being conducted.**

4. Response: Pollutant sources identified in the TMDL are categorized and quantified to the extent that information is available. This source assessment is completed in Section 3 of the TMDL. The sources and conditions described in the TMDL have been identified as being potential contributors of bacteria to the impaired streams. Additional surveys or physical inspections, as suggested by the commenter, can be used to inform the implementation process by focusing pollutant reduction efforts and identifying critical areas. Furthermore, the detection and elimination of illicit discharges is one of the six minimum control measures required by municipal separate storm sewer system, or MS4, permits.

5. Comment: **We strongly disagree with the department's apparent intention to implement these TMDLs by including numeric effluent limits into MS4 permits. Instead, the TMDLs should call for implementation of BMPs to the maximum extent practicable. Please also add language clarifying that the daily TMDL loadings are not intended to be implemented in Missouri State Operating Permits as daily permit limits.**

A similar comment: **The benchmarks of our future implementation plans should be based upon what the Metropolitan St. Louis Sewer District and the City can reasonably achieve together, through the implementation of BMPs to the maximum extent practicable, not upon how close we can get to a set numeric limit.**

A similar comment: **MS4 systems and permits that utilize BMPs as source controls are fundamentally different from typical point sources that rely on end-of-pipe treatment and numeric limits. When BMPs are utilized, the ultimate goal is to employ an iterative process using BMPs to the maximum extent practicable, assessment, and refocused BMPs, leading toward attainment of water quality standards. It is important that the TMDL acknowledge this process in the wasteload allocation portion of the document to avoid confusion over TMDL implementation in MS4 permits.**

A similar comment: **The following is from the Reasonable Assurance section of the TMDLs, "Under this provision, the permitting authority has the discretion to include requirements for reducing pollutants in stormwater discharges as necessary for compliance with water quality standards (EPA 2010)". The citation is based on a memorandum and not legal standing. MDNR cannot require a MS4 permittee to comply with water quality standards through the MS4 permit.**

A similar comment: **The Missouri Department of Transportation, or MoDOT, disagrees with the implementation of TMDLs through the MS4 permits. TMDLs should call for implementation of best management practices, or BMPs, to the maximum extent practicable.**

5. Response: To address point source pollutant contributions, TMDL implementation is completed through discharge permits administered through the Missouri State Operating Permit program to meet the requirements of Missouri's water quality standards and the federal National Pollutant Discharge Elimination System, or NPDES. For MS4 permits, this includes the development and implementation of a stormwater management program plan that addresses the six required minimum control measures and other applicable requirements. Neither the TMDLs nor the implementation plans state that numeric effluent limits will be a required condition of MS4 permits. Language that may have been interpreted to imply such a requirement has been removed from the Reasonable Assurance section of these TMDLs. Additionally, while the permitting authority language reference by the Nov. 12, 2010 U.S. Environmental Protection Agency memo in this section can also be found in Section 402(p) of the federal Clean Water Act, and in federal regulation at 40 CFR § 122.34(e)(1), the department agrees that this language is not a necessary component of the TMDL, and is has been removed. No additional language was added to the wasteload allocation discussion in the TMDLs because of this comment since implementation activities are instead discussed in the supplementary TMDL implementation plans. The TMDL implementation plans utilize an adaptive implementation approach that provides for an iterative process that makes progress toward achieving water quality goals, while using any new data and information to reduce uncertainty and adjust implementation activities. The implementation plans developed for these TMDLs were drafted to facilitate this adaptive approach and to allow flexibility in how and where pollutant management is accomplished.

6. Comment: **In order to provide certainty and transparency as to what is required for MS4 permittees to comply with their permits, the department must approve permittees' stormwater management plans including their TMDL implementation plans.**

6. Response: Currently, EPA only requires that the permitting authority review and provide feedback on a permittee's stormwater management program plan. At this time, the department is not formally approving such plans, thereby allowing these plans to remain dynamic, which helps facilitate an adaptive management approach. The review of MS4 stormwater management program plans is outside the purview of the TMDL process, but this comment has been forwarded to the appropriate staff within the department's permitting section within the Water Protection Program. For more information regarding MS4 permitting requirements, please contact Chris Wieberg, Chief of the Operating Permits Section, at 573-751-6825.

7. Comment: **The calculated load reductions in the implementation plans should be based on the entire set of available water quality data, not only the values that were higher than the water quality geometric mean criteria.**

7. Response: The draft implementation plans placed on public notice included estimates of existing bacteria loads calculated using the geometric means of observed recreational season bacteria data that exceeded the load duration curve within each specified flow condition. Because the state's whole body contact recreation category B criterion is a geometric mean, fluctuations in instantaneous bacteria concentrations are expected and observations of bacteria measurements

greater than 206/100mL do not necessarily indicate a violation of water quality standards. Therefore, reducing the frequency of these exceeding values can help to reduce the overall recreational season geometric mean used to assess the water bodies for compliance with water quality standards. For this reason, the draft TMDL implementation plans targeted these exceeding values when estimating the water bodies' existing loads. However, the fact that the recreational use criterion is a geometric mean makes the calculation of an existing load more challenging than for other pollutants and therefore a number of varying approaches for estimating existing loads are available. The approach suggested in the comment is one such approach and is similar to the approach used in the first public comment period of these TMDLs in 2012. For this reason, the estimates of existing loads and needed load reductions presented in the TMDL implementation plans have been recalculated using observed bacteria measurements that are both in compliance and in exceedance of the load duration curves.

8. Comment: **The water quality data presented in the TMDLs and implementation plans may no longer be representative of stream water quality. As such, the existing water quality dataset is extremely limited to support and direct implementation activities. This reality supports the need for iterative implementation while a reasonable amount of data is collected over a period of years. An iterative approach is necessary to assure implementation activities are focused on the right sources in a manner that will achieve the highest water quality improvements at the lowest cost.**

8. Response: The state's 2014 Listing Methodology Document determines a water body to be impaired by bacteria if the geometric mean in a given recreational season exceeds the water quality criteria in any of the last three years for which there are available data. This document also states that at least five samples are needed during the recreational season in order to determine impairment. Data meeting the listing methodology are available and do show these streams to be impaired by bacteria. All Missouri TMDLs are phased TMDLs and use an adaptive implementation approach that provides for an iterative process that makes progress toward achieving water quality goals, while using any new data and information to reduce uncertainty and adjust implementation activities. The department expects implementation practices to occur over a period of time, but also within the schedules identified in stormwater management plans, state operating permits, or as specified in the Metropolitan St. Louis Sewer District's consent decree.[1] The implementation plans developed for these TMDLs were drafted to facilitate this adaptive approach and to allow flexibility in how and where pollutant management is accomplished.

[1] *United States of America and the State of Missouri, and Missouri Coalition for the Environment Foundation v. Metropolitan St. Louis Sewer District,* No. 4:07-CV-1120

9. Comment: **We believe that it is inappropriate for the TMDLs to set load reductions at flood flows. Please revise the TMDLs to focus on non-flood level stream flows, which are flows less than the 10th percentile exceedance flow.**

A similar comment: **The Metropolitan St. Louis Sewer District submitted photographs and videos of streams in the TMDL watersheds under high flow conditions. The photographs and video support our contention that flows higher than the 10th percentile exceedance flow are not the critical flows for addressing public health concerns or for meeting Missouri's recreational season geometric mean *E. coli* criterion.**

9. Response: Estimates of existing loads and needed reductions were not included in the TMDL documents, as this is not a required element for TMDL approval. However, these estimates were calculated and presented in the implementation plans to serve as a guide for implementation activities. The TMDL load duration curve presents the calculated loading capacity for all flows and conditions in the impaired water bodies. This approach addresses the requirement of 40 CFR § 130.7(c)(1) that states that TMDLs be written to meet EPA-approved water quality standards, and address seasonal variations and critical conditions. For these TMDLs, the TMDL target concentration is set at the state's whole body contact recreation category B criterion at all flows. The state's water quality standards do not provide separate criteria or alternative designated uses for higher flows, nor is there an EPA-approved flow exception for the applicability of recreational uses. Development of the load duration curve was completed using long-term flow data collected over all seasons. Finally, critical conditions are addressed in the TMDL in accordance with EPA guidance. EPA's 1991 TMDL guidance states that for pollutants transported in runoff, critical conditions will be rainfall-related and generally, high flow, wet weather conditions need to be evaluated.[2] Additionally, EPA's 1992 TMDL guidance states that TMDLs must take into account critical conditions for stream flow and loading.[3] Due to the potential of significant loading from constructed sanitary sewer overflows during high-flow conditions as well as the observed high *E. coli* measurements under these conditions, flows less than the 10th percentile exceedance flow are a critical condition and must be addressed in the TMDLs. The relationship between flows, recreational activities, and the potential sources should be considered when selecting TMDL implementation activities.

10. Comment: **An explicit margin of safety of 10 percent is too conservative; an explicit margin of safety of 5 percent is more than adequate and appropriate.**

10. Response: The department agrees that adjustments to the margins of safety used in these TMDLs are appropriate and warranted. Due to conservative assumptions in the modeling of these TMDLs, such as the use of multiple years of flow gage data collected from the impaired segments during all seasons, and the reduced uncertainty of the sources of impairment and their remediation in accordance with the schedules stated in the Metropolitan St. Louis Sewer District's consent decree, these TMDLs will use an implicit margin of safety. Section 6 and 9

[2] USEPA (1991). Guidance for Water Quality-Based Decisions: The TMDL Process, EPA 440/4-91-001 http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/decapd.cfm
[3] USEPA (1992). Guidelines for Reviewing TMDLs Under Existing Regulations Issued in 1992. http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/final52002.cfm

have been revised in these TMDLs to show this change. Likewise, the calculated wasteload and load allocations have been adjusted accordingly.

11. Comment: **The TMDL cites a 2010 study from the U.S. Geological Survey, or USGS, that attributes *E. coli* in creeks to several sources. At least some of the unknown source of *E. coli* should be attributed to the deer and other wildlife that thrive in the established and protected riparian corridors lining the creeks in the watershed.**

A similar comment: **Reviewed the USGS study on *E. coli* source tracking (page 21 of USGS document). With the strands that were identifiable, 35 percent from human sources (presumably onsite wastewater systems, sanitary sewer overflows, and combined sewer overflows); 11 percent from dog waste; 20 percent from geese; and the remaining 34 percent from unknown sources – but some of these sources might be one of the three listed above but the samples were unable to meet the 80 percent similarity criteria needed to source match.**

11. Response: The USGS study referenced in the TMDLs is *Occurrence and Sources of Escherichia coli in Metropolitan St. Louis Streams, October 2004 through September 2007.* This study categorized *E. coli* samples as being human, dog or geese when 80 percent of the samples' genetic markers matched the markers identified in the source library used for this study. Samples with less than 80 percent match were categorized as "unknown." The study indicates that a portion of these unidentified samples may be from other urban wildlife sources, as well as belonging to the human, dog or geese categories, but lacking an 80 percent or greater match. A footnote providing this clarification has been added to Section 3.1.1 where this study is first discussed. Please note that additional discussion pertaining to potential bacteria contributions from wildlife as a component of urban stormwater runoff can be found in Section 3.1.3 of the TMDLs.

12. Comment: **The City does not necessarily control the effluent. We are not able to control every circumstance or potential pollution source. Regarding Section 8.1.2 of the Creve Coeur Creek implementation plan, the commenter states, "The City has no doubt that some of its citizens will take great steps to improve water quality. It is not realistic, however, to expect all citizens to be capable of or interested in participating."**

A similar comment: **It is not realistic to assume the MS4 entities will assume all responsibilities for reduction of *E. coli* when there are other sources beyond the MS4s control that are contributors to the drainage onto or in the MS4, i.e., unmaintained onsite septic systems and pet waste coming from homeowners.**

12. Response: The department recognizes that there are challenges in addressing urban stormwater runoff, however entities holding MS4 permits in the watershed are expected to comply with the conditions and requirements specified in their permit. This includes the six minimum control measures of public education and outreach, public participation and

involvement, illicit discharge detection and elimination, construction site runoff control, post-construction runoff control, and pollution prevention.

13. Comment: **MoDOT should play a role. The TMDL cites a study from the Federal Highway Administration that found runoff from paved areas can contain bacteria. The TMDL is quick, however, to diminish the significance of the report as it relates to highways, stating that contributions from highway corridors are "likely" to be less than other area sources. MoDOT should be held to the same standard in this TMDL.**

A similar comment: **It is unreasonable to expect MoDOT to reduce bacteria under a wasteload allocation when any minor contributions likely come from the traveling public and there are no single structural BMPs that are able to reduce bacteria sufficiently. MoDOT, while a holder of stormwater permit, should be removed from the wasteload allocation.**

13. Response: All potential sources contributing bacteria to the impaired streams are considered in the TMDLs. Section 3.1 of the TMDLs contain detailed source inventories for point sources in the watersheds of the impaired waters. MoDOT is included in this section due to the presence of highway corridor right-of-ways in the watershed that are part of MoDOT's MS4. Additionally, because the MoDOT MS4 is a regulated point source, MoDOT is included in the aggregated MS4 wasteload allocation in Section 7 of the TMDLs. The literature cited in the TMDLs indicates that there are differences in the sources of bacteria originating from highway systems as opposed to urban residential areas or urban green spaces. For this reason, the department does not have sufficient data to adequately disaggregate the MS4 wasteload allocation among the various permitted entities. The TMDL implementation plans indicate that one possible approach for disaggregating the wasteload allocation would be to distribute the wasteload allocation to each MS4 based on the percentage of their respective areas within the watershed. However, this approach assumes bacteria contributions from both municipal and highway MS4s are equally proportional to their areas, which may not be the case. Future monitoring data may identify specific source loading from these MS4s, enabling the MS4 wasteload allocation to be disaggregated and distributed accordingly among the various permitted sources. Additional language has been added to the discussion of MoDOT's MS4 in Section 3.1.3 of the TMDLs to better clarify potential loading from highway systems.

14. Comment: **The city's financial situation is stressed, partly the result of unfunded mandates from the state and federal government. If additional mandates are required that increases the workload of local government, it is recommended that a funding source is included.**

14. Response: A variety of grants and loans may be available to assist watershed stakeholders with developing and implementing watershed plans, controls and practices to meet the wasteload and load allocation targets identified in the TMDLs. Information pertaining to potential funding sources is provided in Section 12 of the TMDL implementation plans. For potential funding opportunities through the Missouri Department of Natural Resources, please visit the

department's Wastewater Financial Assistance website at dnr.mo.gov/env/wpp/srf/wastewater-assistance.htm or the department's Section 319 Nonpoint Source Implementation Program website at dnr.mo.gov/env/wpp/nps/index.html.

15. Comment: **A commenter states, "Living on Coldwater Creek in Florissant, North County St. Louis, I hope that you can the best water quality goals to reduce bacteria and other pollutants in that stream. Not being familiar with all the technical and background knowledge to achieve this goal, I trust the MO DNR to do the best possible job and work they are able to achieve the best results for TMDL issues."**

15. Response: The department appreciates your interest in water quality issues and thanks you for your comments and support of the TMDL process.

16. Comment: **Because states are not required to develop TMDL implementation plans and, if they do, EPA does not approve them, we encourage DNR to delay the TMDL implementation plans until such time when there is available a body of research and knowledge that will allow for an equitable division of the costs and responsibilities to implement plans that effectively reduce pollutants.**

16. Response: TMDLs are required to meet water quality standards (40 CFR 130.7(c)(1)) and this is done absent of cost considerations. However, all Missouri TMDLs are phased TMDLs and use an adaptive implementation approach that allows for an iterative process that makes progress toward achieving water quality goals, while using any new data and information to reduce uncertainty and adjust implementation activities. The TMDL implementation plans do not require any specific implementation activities or BMPs, but do provide information regarding the types of practices available and where those practices may help achieve the estimated pollutant reductions. One of the goals of the TMDL implementation plans is to provide flexibility in how and where pollutant management is accomplished. The department expects implementation practices to occur over a period of time, but also within the schedules identified in stormwater management plans, state operating permits, or as specified in the Metropolitan St. Louis Sewer District's consent decree. Although implementation plans are not a required element of TMDL development, the department recognizes that technical guidance and support are critical to determining the feasibility of achieving the goals of the TMDL. For this reason, the department will continue to prepare implementation plans in conjunction with TMDL development, however future adjustments to these plans may be necessary.

17. Comment: **The Metropolitan St. Louis Sewer District requests a meeting to review these final comments and documents with department staff.**

17. Response: As stated in the public comments submitted by the Metropolitan St. Louis Sewer District on Oct. 21, 2014, the department met with the district twice during the public comment period (on July 22 and Oct. 2, 2014) to discuss the draft TMDLs and implementation plans. A third meeting was held on Dec. 30, 2014 to discuss changes made to the TMDL documents

following the close of the public comment period. The department appreciates the opportunity to have met with the district, and has gained a greater understanding of the issues affecting MS4 permittees in the St. Louis area.

18. Comment: **The load allocation cannot realistically be equal to zero. The nonpoint sources must be given a share of the allocation. It is not reasonable to make the assumption that all septic systems and such are functioning properly.**

18. Response: Nonpoint sources identified in these TMDLs include onsite wastewater treatment systems and in the case of Coldwater Creek, runoff from areas of the watershed where stormwater is not regulated by MS4 permits. For the Coldwater Creek TMDL, the load allocation assigned to the unregulated stormwater contributions is the remainder of the loading capacity following allocations to the point source wasteload allocation. In all TMDLs, onsite wastewater treatment systems are assigned a zero load allocation indicating that these systems are not allowed to contribute bacteria to the impaired waters and that any contributions that may be occurring should be reduced entirely. Section 3.2.3 of the TMDLs notes the potential for these systems to be contributing to the impairment and indicates that up to 50 percent of these systems may be failing.

19. Comment: **Because of the diffuse nature of stormwater, there will always be insufficient data to disaggregate the wasteload allocation, and yet parts of the *E. coli* contributors (e.g., homeowners) are not permitted and yet contribute to the impairment.**

19. Response: As stated in response to Comment 13, the literature cited in the TMDLs indicates that there are differences in the sources of bacteria originating from highway systems as opposed to urban residential areas or urban green spaces. For this reason, the department does not currently have sufficient data to adequately disaggregate the MS4 wasteload allocation among the various permitted entities. The TMDL implementation plans indicate that one possible approach for disaggregating the wasteload allocation would be to distribute the wasteload allocation to each MS4 based on the percentage of their respective areas within the watershed. However, this approach assumes bacteria contributions from both municipal and highway MS4s are equally proportional to their areas, which may not be the case. Future monitoring data may identify specific source loading from these MS4s, enabling the MS4 wasteload allocation to be disaggregated and distributed accordingly among the various permitted sources. Regarding contributions from homeowners, entities holding MS4 permits in the watershed are expected to comply with the conditions and requirements specified in their permit. This includes the six minimum control measures of public education and outreach, public participation and involvement, illicit discharge detection and elimination, construction site runoff control, post-construction runoff control, and pollution prevention.

20. Comment: **The implementation plan considers urban runoff as nonpoint source, but in the TMDL it is a point source? The information is contradictory.**

20. Response: Clarifying language has been added to Section 5.1.2 of the TMDL implementation plans to eliminate this apparent contradiction. Although the TMDLs consider urban runoff from MS4 areas to be regulated point sources, implementation efforts should address urban runoff in a manner similar to nonpoint source runoff using BMPs to control or reduce stormwater runoff. It is expected that reductions in overall runoff into MS4s will aid in reducing overall bacteria loading from these sources.

21. Comment: **Grassland areas in the urban watershed seem to be community shared spaces, e.g., parks/playgrounds and cemeteries. Bacterial inputs could be coming from dog parks if they are located in this watershed.**

21. Response: TMDL source inventory and assessment characterizes known, suspected and potential sources of pollutant loading. Pollutant sources identified within the watersheds were categorized and quantified to the extent information is available. Potential bacterial contributions from dog waste, as a component of urban runoff, was included in the discussion in Section 3.1.3 of the TMDLs. BMPs associated with reducing contributions from pet waste can be found in the TMDL implementation plans. In addition, entities holding MS4 permits in the watershed are expected to comply with the conditions and requirements specified in their permit, including instituting the six minimum control measures of public education and outreach, public participation and involvement, illicit discharge detection and elimination, construction site runoff control, post-construction runoff control, and pollution prevention.

22. Comment: **It should be better identified within the TMDLs how much of the watershed is not only roadway, but MoDOT roadway. MoDOT roads in most of these watersheds are a minor road component compared to city/county roads. Further, it should be based on impervious surface, not just right-of-way. It is our belief that the TMDLs should be more specific in this regard.**

22. Response: Pollutant sources identified within the watershed are categorized and quantified to the extent that information is available. As stated in Section 2.3 of the TMDLs, the areas surrounding the impaired streams fall within the boundaries of defined U.S. Census Bureau urban areas. EPA defines these urban areas as entities requiring stormwater regulations through MS4 permits.[4] For this reason, urban stormwater runoff was addressed as a point source in these TMDLs and the wasteload allocation assigned to these sources was derived from the proportion of the total watershed area that the defined urban area encompasses. Except for the case of Coldwater Creek, the urban area accounted for 100 percent of the entire watershed area. For the Coldwater Creek TMDL, the urban area accounted for 96 percent of the watershed area. MoDOT's right-of-ways are located within these urban areas, however the area specifically draining to MoDOT's MS4 was not calculated in the TMDL and the established wasteload allocation was not disaggregated between the various MS4s. Using this approach considers runoff from all sources and areas within the urban area, including both pervious and impervious

[4] http://water.epa.gov/polwaste/npdes/stormwater/Urbanized-Area-Maps-for-NPDES-MS4-Phase-II-Stormwater-Permits.cfm

surfaces. The TMDL notes in Section 3.1.1 that bacteria contributions can occur from both heavily paved areas and from open areas where soil erosion is common. For this reason, basing TMDL targets on only the impervious portion of MoDOT's MS4, as opposed to the rights-of-way, would not be sufficient or appropriate. Considerations of specific bacteria inputs from unpaved rights-of-way versus impervious surfaces may be useful in determining critical areas and the selection and location of BMP implementation.

-- END SUMMARY OF COMMENTS AND RESPONSES